Jectse CP-05+

Jectse CP-05+ AC/DC Clamp Current Probe User Manual

Model: CP-05+

1. Introduction and Overview

The Jectse CP-05+ AC/DC Clamp Current Probe is a high-performance instrument designed for precise current measurement in conjunction with an oscilloscope. It utilizes an amorphous alloy core, ensuring high performance with minimal loss. This probe offers a wide bandwidth up to 200 kHz and supports various current test ranges, making it suitable for a broad spectrum of electrical testing applications. Its features include auto-zero at power-on and relative zero correction for enhanced accuracy.



Image 1.1: The Jectse CP-05+ AC/DC Clamp Current Probe measuring current on various electrical cables.

2. Product Features

- **Amorphous Alloy Core:** Ensures high performance and low signal loss.
- **Wide Current Test Ranges:** Supports 4A, 40A, 200A, and 200-400A for diverse applications.
- **Broad Bandwidth:** Operates effectively up to 200 kHz (±3dB).
- **Low Battery Indication:** Alerts the user when the battery needs replacement.
- **Auto Zero at Power-on:** Automatically calibrates to zero upon startup.
- **Relative Zero Correction:** Allows for manual zero adjustment for precise measurements.
- **Low Noise Level:** Provides clean signal output for accurate readings.
- **High Detection Accuracy:** Ensures reliable and consistent measurement results.

3. Package Contents

Please verify that all items listed below are included in your package:

- 1 x Jectse CP-05+ AC/DC Clamp Current Probe
- 1 x Carrying Case
- 1 x User Manual (this document)

Note: A 9V 6F22 battery is required for operation and is not included in the package.



Image 3.1: The CP-05+ probe shown with its included carrying case.

4. Setup

4.1 Battery Installation

1. Locate the battery compartment cover on the back of the probe.
2. Use a small screwdriver to open the battery compartment.
3. Insert a new 9V 6F22 battery, ensuring correct polarity (+/-).
4. Replace the battery compartment cover and secure it.



Image 4.1: Battery compartment of the CP-05+ probe.

4.2 Connecting to an Oscilloscope

1. Connect the BNC connector of the probe's output cable to an input channel on your oscilloscope.
2. Ensure the connection is secure.
3. Set the oscilloscope input impedance to 1 MΩ.



Image 4.2: The CP-05+ probe with its BNC output cable.

5. Operating Instructions

5.1 Powering On and Auto-Zero

1. Slide the power switch to the 'ON' position. The probe will perform an auto-zero function.
2. Ensure the jaws are closed and there is no current flowing through them during auto-zero for accurate calibration.
3. If the 'LOW BATTERY' indicator illuminates, replace the 9V battery.

5.2 Range Selection

The CP-05+ offers multiple current ranges. Select the appropriate range using the slide switch:

- **4A Range:** For measuring currents up to 4 Amperes. Output sensitivity: DC/AC 100mV/A.
- **40A Range:** For measuring currents up to 40 Amperes. Output sensitivity: DC/AC 10mV/A.

- **400A Range:** For measuring currents up to 400 Amperes. Output sensitivity: DC/AC 1mV/A.

Always select a range higher than the expected current to avoid overloading the probe and ensure accurate readings.

5.3 Zero Adjustment (Relative Zero Correction)

After auto-zero, if a slight offset is observed, or for precise DC measurements, use the 'ZERO' button:

1. Ensure the probe jaws are closed and no current is flowing through them.
2. Press the 'ZERO' button to manually correct any residual offset.



Image 5.1: Control panel of the CP-05+ probe.

5.4 Taking Measurements

1. Open the clamp jaws by pressing the trigger.
2. Carefully place the conductor (wire) carrying the current to be measured inside the jaws. Ensure only one conductor is within the jaws for accurate readings.

3. Release the trigger to close the jaws securely around the conductor.
4. Observe the current waveform and magnitude on your connected oscilloscope.
5. To measure DC current, note the direction of the current flow. The probe will indicate positive or negative voltage depending on the current direction relative to the probe's orientation.

6. Maintenance

- **Cleaning:** Wipe the probe with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Battery Replacement:** Replace the 9V battery promptly when the 'LOW BATTERY' indicator appears to ensure accurate measurements and prevent damage from battery leakage.
- **Storage:** Store the probe in its carrying case in a cool, dry place, away from direct sunlight and extreme temperatures. Remove the battery if the probe will not be used for an extended period.
- **Jaw Care:** Keep the clamp jaws clean and free from debris to ensure proper closure and accurate readings.

7. Troubleshooting

Problem	Possible Cause	Solution
Probe does not power on.	Dead or incorrectly installed battery.	Check battery polarity; replace with a new 9V 6F22 battery.
'LOW BATTERY' indicator is on.	Battery voltage is low.	Replace the 9V 6F22 battery immediately.
Inaccurate or unstable readings.	Incorrect range selected. Jaws not fully closed or dirty. External magnetic fields. Multiple conductors within jaws. Oscilloscope input impedance mismatch.	Select a higher current range. Clean jaws and ensure they close properly. Move away from strong magnetic sources. Ensure only one conductor is clamped. Set oscilloscope input impedance to 1 MΩ.
No output signal on oscilloscope.	Probe not powered on. Cable not connected securely. Oscilloscope settings incorrect.	Turn on the probe. Check BNC cable connection to both probe and oscilloscope. Verify oscilloscope channel is enabled and properly scaled.

8. Specifications

Parameter	Value
Model	CP-05+
Test Range	1mA - 400A
Bandwidth	DC - 200 kHz (±3dB)

Parameter	Value
Jaw Size (Max)	23 mm
Auto Zero at Power-on	Yes
Power Supply	9V 6F22 Battery (not included)
Operating Temperature	0°C to 50°C
Operating Humidity	15% to 70% RH
Dimensions (L*W*H)	18.5 * 6.8 * 2.5 cm (7.3 * 2.7 * 1 inches)
Weight	272 g (9.6 oz)

Current Ranges and Sensitivity

Range	Output Sensitivity (DC/AC)
4A	100mV/A
40A	10mV/A
400A	1mV/A

Accuracy

Range	Accuracy (DC)	Accuracy (AC)
4A	±1.5% Reading ±5 Digits	±2.0% Reading ±5 Digits
40A	±1.5% Reading ±5 Digits	±2.0% Reading ±5 Digits
200A	±1.5% Reading ±5 Digits	±2.0% Reading ±5 Digits
200-400A	±3.0% Reading ±5 Digits	±3.0% Reading ±5 Digits

9. Warranty and Support

Jectse products are manufactured to high-quality standards. For specific warranty information, please refer to the warranty card included with your purchase or visit the official Jectse website. For technical support, troubleshooting assistance, or any inquiries regarding your CP-05+ AC/DC Clamp Current Probe, please contact Jectse customer service through the contact information provided on our website or your purchase documentation.

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